REMARKS

The present application is amended in a manner to place it in condition for allowance.

Claim Status

Claims 1 and 6 are amended to further describe the bearing area of the cladding relative to the substrate in a manner consistent with the third paragraph of page 2 of the originally filed specification.

Claims 1 and 3-10 are remain pending.

Claim Rejections-35 USC §103

Claims 1, 3, 5, 6 and 9 were rejected under 35 U.S.C. § 103(a) as obvious over PELRINE et al. US 2002/0122561 (PELRINE) in view of NILSSON et al. US 4,539,575 (NILSSON). This rejection is respectfully traversed for the reasons that follow.

Independent claims 1 and 6 are directed to a cladding composition where the cladding bears on the substrate at a bearing area. This bearing area bears fully on the substrate, and the bearing area matches the surface area of the cladding in terms of magnitude. In claim 1, only subregions of the bearing area are fixed to substrate, whereas in claim 6 the cladding is firmly connected to the substrate over the entire bearing area.

Claim 1 may be represented by Figure 1 of present disclosure and Claim 6 may be represented by Figure 6 of the present disclosure, where item A is the bearing area and item 12 is the substrate:

FIG 1

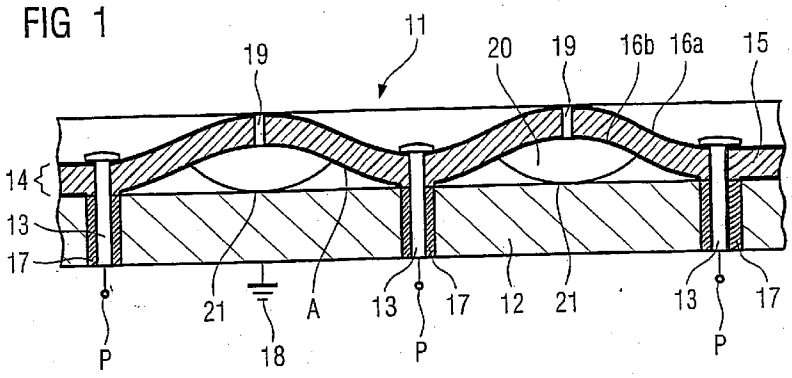
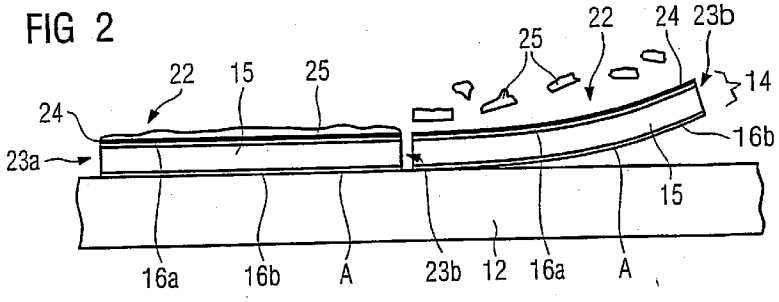
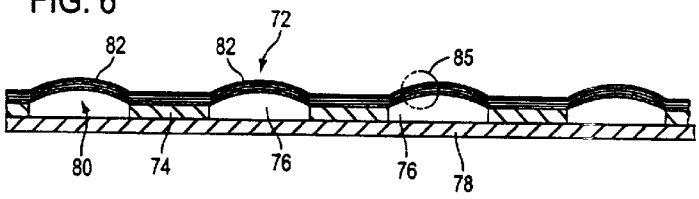


FIG 2



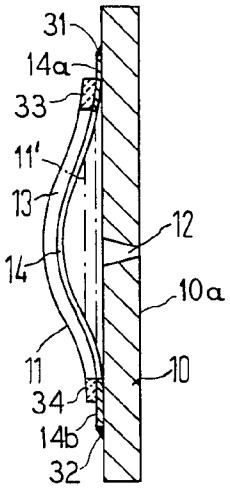
PELRINE was offered for teaching a cladding composition, but, as acknowledged by the Official Action, PELRINE fails to disclose or suggest bearing area/substrate structure of claim 1. Indeed, this is readily apparent by Figure 6 of PERLINE:

FIG. 6



That is, the "cladding" elastic boundary layer 72 bears against both support structure 74 and apertures 76. Thus, the "bearing area" does not bear fully on the substrate, or support structure 74, and fails to match the surface area of the cladding in magnitude.

NILSSON was offered for teaching cladding that bears on a substrate (item 10) by means of a bearing area which matches the surface area of the cladding in terms of magnitude. The Official Action referred to Figure 1:



However, similar to PELRINE, the "bearing area" of NILSSON is formed by the "cladding", i.e. membrane structure (items 13/14), bearing on both a substrate and an opening (item 12). Accordingly, due to this opening, the bearing area does not

bear fully on the substrate, and this bearing area fails to match the surface area of the cladding in magnitude.

Thus, neither PELRINE nor NILSSON teach a "bearing area" as defined in independent claims 1 and 6.

Moreover, one would have been strongly discouraged to modify PELRINE to even approach the claimed invention.

The membrane of PELRINE is configured for vibrations. Because of the amplitude of these vibrations, the substrate must have holes in order to provide a substantially free vibration movement, e.g., as described in paragraph [0004] of PELRINE. Thus, to form a substrate without holes would have rendered the membrane/substrate structure of PELRINE unsatisfactory for its intended purpose.

Therefore, the proposed combination fails to render obvious the claimed invention as defined by independent claims 1 and 6 and dependent claims 3, 5 and 9, and withdrawal of the rejection is respectfully requested.

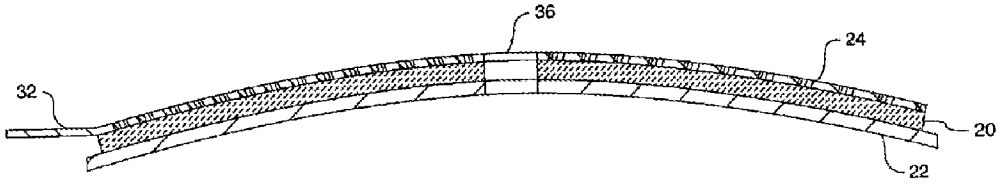
Claim 4 was rejected under 35 U.S.C. § 103(a) as obvious over PELRINE in view of NILSSON and MAUSHARD et al. US 6,803,700 (MAUSHARD). This rejection is respectfully traversed for the reasons that follow.

PELRINE and NILSSON were offered for the same reasons as discussed above.

MAUSHARD was offered for teaching a through-hole.

However, regardless of the ability of MAUSHARD to teach that for which it was offered, MAUSHARD fails to remedy the shortcomings of PELRINE and NILSSON for reference purposes.

MAUSHARD includes a substrate 22, ceramic layer 20 and a stiff metal layer 24, and, thus, relates to different layers than those claimed:



Moreover, MAUSHARD fails to provide any suggestion for altering the substrate structure of PELRINE without destroying its intended purpose.

Therefore, the combination fails to render obvious independent claims 1 and 6, and dependent claim 4, and withdrawal of the rejection is respectfully requested.

Claim 7 was rejected under 35 U.S.C. § 103(a) obvious over PELRINE in view of NILSSON and KIHARA et al. U.S. 2002/0043901 (KIHARA). This rejection is respectfully traversed.

PELRINE and NILSSON were offered for the same reasons as discussed above.

KIHARA was offered for teaching a honey-comb-like structure on the polymer layer. However, KIHARA also fails to remedy the shortcomings of PELRINE and NILSSON for reference purposes as KIHARA fails to suggest the claimed structure and

modification of the PELRINE structure without destroying its intended purpose.

Therefore, the combination fails to teach the features of independent claims 1 and 6, and dependent claim 7, and withdrawal of the rejection is respectfully requested.

Claim 8 was rejected under 35 U.S.C. § 103(a) obvious over PELRINE in view of NILSSON and DYDYK U.S. 5,596,239 (DYDYK). This rejection is respectfully traversed.

Claim 10 was rejected under 35 U.S.C. § 103(a) obvious over PELRINE in view of NILSSON, KIHARA and DYDYK. This rejection is respectfully traversed.

PELRINE, NILSSON, and KIHARA were offered for the reasons discussed above.

DYDYK was offered for teaching a piezoelectric actuator in which the substrate forms an electrode for the piezoelectric layer of the actuator. The Official Action points to Figure 3.

However, DYDYK fails to remedy the shortcomings of PELRINE, NILSSON, and KIHARA for reference purposes

DYDYK discloses both a prior art structure (Figure 1) and an inventive structure (Figure 3).

In Figure 1, as shown below, and explained in column 3, line 60 to column 4, line 42 of DYDYK. The “cladding” of this structure comprises the electrode 19, the piezoelectric resonator layer 14 and the electrode 17, which DYDYK refers to as an actuator of a thickness of one half of an acoustic wave length:

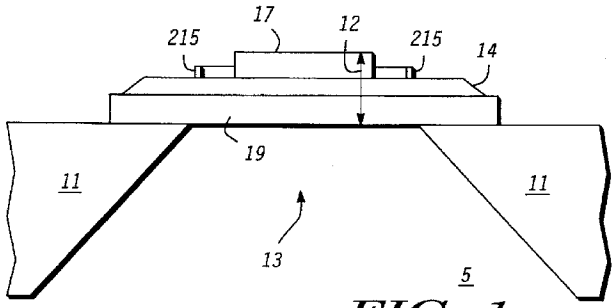
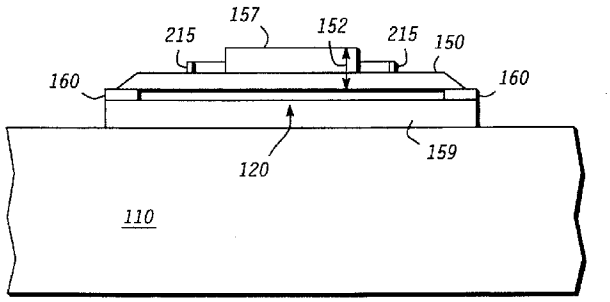


FIG. 1
(PRIOR ART)

However, DYDYK fails for similar reasons as PELRINE and NILSSON. The substrate 11 of DYDYK includes a cavity 13, the "bearing area" of the cladding is much smaller than the surface area of the cladding. That is, the "bearing area" includes both the substrate 11 and cavity 13.

The actual invention of DYDYK is shown, for example, in Figure 3:

FIG. 3 15



The substrate of is labeled as 110, this substrate solely contacts a non-elastic boundary layer (electrode 159 explained in column 5, lines 5-30), and, thus, the structure is contrary to the claimed structure. However, even if one were to consider the substrate to be item 160, the elastic boundary layer

(items150/157) does not bear fully on substrate 160 such that the bearing area has the same magnitude as the surface area as the cladding, as there is a gap between items 160.

Thus, in both the prior art and inventive structure DYDYK fails to suggest the claimed “bearing area”.

Also, similar to PELRINE, DYDYK is directed to structures that require membrane vibration (see, e.g., column 1, lines 14-19). Accordingly, DYDYK fails to suggest the modification of the PELRINE structure without destroying its intended purpose.

Therefore, the proposed combination fails to teach the claimed invention of independent claims 1 and 6, and dependent claim 8 and 10, and withdrawal of the rejection is respectfully requested.

Conclusion

In view of the amendment to the claims and the foregoing remarks, this application is in condition for allowance at the time of the next Official Action. Allowance and passage to issue on that basis is respectfully requested.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized in this, concurrent, and future submissions, to charge any deficiency or

credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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